

Technical Narrative

Introduction. On May 21, 2004 the Commission released a Notice of Proposed Rulemaking seeking comment on a proposal to allot channel 261C2 to Creede, Colorado. The Notice correctly indicated that the proposed allotment site meets the minimum distance separation requirements of §73.207.

Unfortunately the proposal fails to meet the requirements of §73.315 in that the allotment site proposed in the Notice is deeply shadowed over Creede, even assuming a 150 meter above ground level {AGL} tower at the allotment site (resulting in a 516 meter height above average terrain {HAAT}). Further, the allotment site lies within the La Garita Wilderness, part of the Rio Grande National Forest of the United States Forest Service. La Garita includes the Wheeler Geologic Area, "...a National Monument [since] 1908, the rock formations at Wheeler are among the most unique in the West."¹ For this reason, it is very likely that the allotment site would fall under 47 C.F.R. §§1.1301 to 1.1319.

Though the Notice did not mention coverage of areas with no existing aural service, it is worth noting that terrain sharply limits interference-free coverage performance from the proposed site. As shown in Exhibits 21A and 21B, only a fraction of the population claimed in Jacor's petition would actually receive service. Jacor, using hypothetical "flat-earth" coverage prediction methodology, claims that 143 persons would receive a first reception service. Longley-Rice indicates only 32 persons would be served by Jacor's proposal while a similar analysis shows that Channel 248C, proposed by Meadowlark Group, Inc. in Docket No. 03-57, at Creede would serve 102 persons. It is particularly important to note that based on Longley-Rice, there are no persons served by the proposed 261C2 that are not predicted to be served by the proposed 248C, yet the proposed 261C2 omits coverage of 70 persons predicted to be covered by 248C. Similarly, F[50,50] prediction shows that Jacor's proposed allotment falls short. See map entitled "F[50,50] Coverage of Two Proposed Creede, Colorado Allotments," attached as Exhibit 21C.

Notwithstanding the claims of white area coverage, because the Staff felt that this might be otherwise a meritorious allotment, an effort was made to determine whether there might be a suitable site somewhere within the usable area as defined by §73.207. Initially, all sites within the La Garita Wilderness were ignored since road access, motorized vehicles, grading, construction and permanent structures are prohibited. Part of the hypothetical usable area lies beyond the Continental Divide and was ignored for that reason. The usable area [as defined by required distances to the facilities of KRSJ, Durango, CO and KVUU, Pueblo, CO] extends north of the La Garita Wilderness but these locations are over the Continental Divide and unsuitable for reasons of §73.315

¹ USFS Points of Interest listed on the Rio Grande National Forest Map. USDA, 1996

line of sight. As will be shown, there is apparently no site for this allotment that meets the requirements of §73.207 and §73.315.

Method. For each of 20 sites, including the allotment site put forth in the Notice and six sites within the access road to the Wheeler Geologic Site, every representative point of high ground which could be found within the §73.207 spacing limits was mapped and analyzed three ways – line-of-sight, shadowing and Longley-Rice v1.2.2. These possible sites are listed, along with names when known, coordinates, site and antenna elevations, HAAT and corresponding effective radiated power (ERP) for a full facilities class C2 in an attached exhibit entitled *Table of Allotment Sites Examined* (Table).

The tower heights assumed at each of these locations was the greater of 150 meters AGL or the tower height required to achieve 150 meters HAAT, presuming that the proponent would commit to erect a tower taller than 150 meters AGL if one was required. For each site a terrain profile was drawn using a 3 arc second terrain database and assuming earth curvature of 1.33. These terrain profiles are numbered to identify the particular site and lettered “T” to indicate terrain. Then a shadow map was drawn to indicate the trend across the entire Creede incorporated community. These shadow maps are similarly site-numbered and lettered “S” to indicate shadow. Finally, to determine whether any sites exhibit a peculiar advantage and could provide 70dBu service to Creede in spite of terrain obstructions, a Longley-Rice v1.2.2 analysis was conducted. These Longley-Rice maps are site-numbered and lettered with “L.” To assure that F[50,50] methodology was inappropriate for the extraordinarily rugged terrain in the area, Delta-H was calculated for each terrain profile. Beginning at a point 10 KM from the site under study and ending at a point just beyond the community boundary of Creede (since the ‘contour of interest’ is the signal level over Creede), sufficient equally-spaced points were taken. No Delta-H value was less than 183 meters.

A fourth map for each site shows its location within the Rio Grande National Forest. The assumed tower heights, generally 150 meters or more AGL, would almost certainly run afoul of the limits on construction within the National Forest. Nevertheless, the analysis was conducted ignoring almost certain United States Forest Service reluctance.

Results. The findings of the analysis of the 20 sites are tabulated in the Table. Creede is in a valley on the banks of Willow Creek. A mountain ridge rises sharply to the east of Creede. The terrain rises from the valley floor upwards some 300 to 700 meters over a distance of less than 2 kilometers. Further complicating the allotment of 261C2 is the population distribution within Creede. While a few sites show small areas of coverage in excess of 60 dBu (see exhibits “L”) in each case the area is to the west of Creede. As shown in Exhibit 22, the bulk of the population is concentrated on the east side of the community – directly beneath the sharply-rising ridge.

Any fully spaced site must be at least 7 kilometers further north or east of this sharp ridge. This effectively precludes sites to the northeast and east of Creede as can be seen on the shadowing maps (Exhibits "S") and the Longley-Rice studies (Exhibits "L"). Nevertheless, sites in this area were studied. To the southeast, towards South Fork, Colorado, there is a snaking valley but because of the required elevation to clear the canyon outcroppings, only one site has any chance of unobstructed coverage.

Finally, there is a fully spaced site for 261C1 at approximate coordinates 37-29-00 North Latitude (NL) 106-37-21 West Longitude (WL). This site fails hypothetical, as the northwest corner of incorporated Creede is at 37-52-9 North Latitude 106-55-15 West Longitude, 50.26 kilometers distant. In any event, any site in the C1 usable area (bounded by the above, along with 37-24-17 NL 106-36-52 WL and 37-26-40 NL 106-34-37 WL) would be completely obstructed by Trout Mountain at 106-47-27 NL. Indeed, presuming a 299 meter tower on top of the tallest peak in the area, North Mountain at 37-27-3 NL 106-36-15 WL, a 4163 meter AMSL facility, Trout Mountain obstructs the path by over 100 meters. So it can be concluded that no suitable C1 site exists.

Conclusions. No usable site exists for 261C2, Creede, Colorado that complies with the rules pertaining to city grade coverage of the community of license. Further, no site exists for 261C1 for the same reasons. It is suggested that the staff return the petition as being technically unacceptable with the suggestion that the proponent consider a class A or class C3 facility. Such a lower class facility would require a smaller site restriction and much more reasonable facilities.

The claim of white area coverage of 143 persons is no longer valid at any site outside the La Garita Wilderness, where a tower would be impossible. Fewer white area persons and less white area would be served from any other site. Indeed if the not-yet-dismissed proposal for 265C2 at Gunnison (RM-10483) is ignored², even the proposed allotment coordinates in Jacor's petition omit white area which another pending allotment proposal for 248C Creede, Colorado would serve.

² 265C2 at Gunnison was proposed along with nine other new allotments by Willison Gormley. When the staff issued a multiple docket Notice of Proposed Rulemaking for the ten new proposals [DA-02-1553], Gormley failed to timely express interest in the allotments he had requested. The staff subsequently dismissed all but 265C2 at Gunnison. Gunnison likely was an oversight. Gormley submitted further correspondence indicating continuing interest well past the comment deadline.

Table of Allotment Sites Examined

Exhibit	Site Name	Lat	Lon	Site Elev	Ant C/R	Delta-H	HAAT	ERP(KW)	Line of Sight	Shadow	70 dBu
1	Allocr	37-52-56	106-45-38	3692	3842	319	516	3.3	Obstructed	Shadowed	Fail
2	Wheeler 0	37-52-23	106-47-10	3346	3496	264	159	44.3	Obstructed	Shadowed	Fail
3	Wheeler 1	37-51-54	106-47-6	3360	3510	240	200	28.3	Obstructed	Shadowed	Fail
4	Wheeler 2	37-51-39	106-46-27	3423	3573	249	249	18.5	Obstructed	Shadowed	Fail
5	Wheeler 3	37-51-38	106-44-51	3413	3563	288	242	19.6	Obstructed	Shadowed	Fail
6	Wheeler 4	37-51-34	106-43-49	3298	3496	421	150	50	Obstructed	Shadowed	Fail
7	Wheeler 5	37-50-53	106-43-23	3352	3502	413	163	42	Obstructed	Shadowed	Fail
8	Unnamed 1	37-49-16	106-42-49	3626	3776	234	547	2.8	Obstructed	Shadowed	Fail
9	Unnamed 2	37-48-58	106-43-34	3534	3684	206	483	4	Obstructed	Shadowed	Fail
10	Unnamed 3	37-48-16	106-43-30	3532	3682	198	521	3.2	Obstructed	Shadowed	Fail
11	Unnamed 4	37-48-54	106-41-19	3565	3715	183	516	3.3	Obstructed	Shadowed	Fail
12	Unnamed 5	37-47-55	106-40-22	3533	3683	468	539	2.9	Obstructed	Shadowed	Fail
13	Unnamed 6	37-46-59	106-38-41	3529	3679	435	595	2.2	Obstructed	Shadowed	Fail
14	Unnamed 7	37-46-23	106-40-1	3337	3487	300	419	5.8	Obstructed	Shadowed	Fail
15	Unnamed 8	37-46-23	106-42-32	3366	3516	202	430	5.4	Obstructed	Shadowed	Fail
16	Unnamed 9	37-44-27	106-42-4	3276	3426	354	403	6.4	Obstructed	Shadowed	Fail
17	Unnamed 10	37-43-8	106-40-52	3054	3204	533	223	22.9	Obstructed	Shadowed	Fail
18	Unnamed 11	37-42-11	106-39-37	3003	3153	319	219	23.7	Obstructed	Shadowed	Fail
19	Baxter Mountain	37-41-41	106-39-31	2972	3122	433	202	27.7	Obstructed	Shadowed	Fail
20	Private Site	37-47-10	106-43-51	3311	3461	191	347	9	Obstructed	Shadowed	Fail